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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,675	12/17/2001	Isao Ota	111483	5111
25944	7590	05/06/2004		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER UMEZ ERONINI, LYNETTE T	
			ART UNIT 1765	PAPER NUMBER

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,675

Applicant(s)

OTA ET AL.

Examiner

Lynette T. Umez-Eronini

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 4-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/10/02 & 11/19/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-3 and 11-18 in Paper filed 2/17/2004 is acknowledged. The traversal is on the ground(s) that claim 10 is not directed to a process for producing a sol or a method for making a sol and should be grouped with Group I, claims 1-3 and 11-18. With respect to the former, applicants' arguments are found persuasive. Hence claim 10 would be examined along with the elected claims 1-3 and 11-18. Also, traversal is on the ground(s) the subject matter of all the claims is sufficiently related that a thorough search for the subject matter of any one Group of claims would encompass a search for the subject matter of the remaining claims. Applicants' arguments are unpersuasive because it has been shown that the inventions are distinct because the process as claimed can be used to make other and materially different products such as an abrasive that contains a sol, thereby making it a burden to examine different inventions.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 11 is objected to because of the following informalities: on line 12, "ration" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1765

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10, lines 1-7, recites the same limitations as claim 1 and is indefinite because it is unclear how the scope of claim 10 differs from that of claim 1.

In claim 11, lines 7-16, "characterized in that the sol is produced according to the steps: a first step of reacting . . ." is indefinite because it is unclear whether the claim is directed to a sol (composition) or a method of making a sol.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 10-13, and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tatsu et al. (US 4,769,073).

Tatsu teaches an admixture with a solution of a cerium salt and salts of the rare earths (column 4, lines 14-29) and lists a composition comprising: ceric oxide, lanthanum oxide, and neodymium oxide and having a mean particle diameter of 1.5 +/- 1 um, in and EXAMPLE 1 (column 12, lines 13-37). Tatsu discloses ceric oxide in the form of the composition described in French Pat. No. 2,549,846 and such compositions

Art Unit: 1765

comprise a crystallographic phase of CeO₂ type (column 5, lines 7-10). Tatsu further teaches the concentration of the solution of the cerium salt and of the salt of rare earths is not critical and may also vary over wide limits. A concentration of from 0.5 to 2 moles per liter is preferred in the former and 0.1 to 1 mole per liter in the later (column 3, lines 28-30 and column 4, lines 30-33). The aforementioned reads on,

A sol which particles are dispersed in a medium, wherein the particles have a particle size of 0.005 to 1 μm and comprise as a main component crystalline cerium oxide of the cubic system and as an additional component a lanthanum compound, neodymium compound or a combination thereof, wherein the additional component is contained in $X/(\text{Ce}+X)$ molar ratio of 0.001 to 0.5 in which X is lanthanum atoms, neodymium atoms or a combination thereof, **in claim 1**;

wherein the additional component is a lanthanum compound, **in claim 2**;

wherein the additional component is a neodymium compound, **in claim 3**;

A main component crystalline cerium oxide of the cubic system and as an additional component a lanthanum compound, neodymium compound or a combination thereof, wherein the additional component is contained in $X/(\text{Ce}+X)$ molar ratio of .001 to 0.5 in which X is lanthanum atoms, neodymium atoms or a combination thereof, **in claim 10**;

An abrasive containing a sol which particles are dispersed in a medium, wherein the particles have a particle size of 0.005 to 1 μm and comprise as a main component crystalline cerium oxide of the cubic system and as an additional component a lanthanum compound, neodymium compound or a combination thereof,

Art Unit: 1765

wherein the additional component is contained in $X/(Ce+X)$ molar ratio of 0.001 to 0.5 in which X is lanthanum atoms, neodymium atoms or a combination thereof, characterized in that the sol is produced according to the steps: a first step of reacting an aqueous solution which a cerium (III) salt is mixed with a lanthanum (III) salt, a neodymium (III) salt or a combination thereof in an aqueous medium in $X/(Ce+X)$ molar ratio of 0.001 to 0.5, with an alkaline substance in $(OH^-)/(Ce^{3++}X^{3+})$ molar ratio of 3 to 30 to give a suspension in which cerium (III) hydroxide and a hydroxide of the trivalent additional component X are homogeneously mixed; and a second step of blowing oxygen or a gas containing oxygen into the suspension at a temperature of 10 to 95°C, **in claim 11;**

wherein the additional component is a lanthanum compound, **in claim 12;**

wherein the additional component is a neodymium compound, **in claim 13;**

Also, Tatsu teaches, a solution of the cerium salt, the basic solution and the aqueous solution of the salt the trivalent rare earth were characterized, such that the pH of the reaction medium range from 5 to 10 (column 5, lines 53- 66), which reads on, an abrasive, which is adjusted with a basic substance to a pH of 8 to 13, **in claim 15.**

As pertaining to claims 16-18, since Tatsu uses the same composition as the claimed invention, then using Tatsu's composition in the same manner as claimed by applicants in the claims would respectively result in,

an abrasive, which is used for polishing a substrate, which comprises silica as a main component,

an abrasive, which is used for polishing a rock crystal, a quartz glass for photomask, a semiconductor device or a hard disk made of glass; and

an abrasive, which is used in a step of polishing an organic film, a step of polishing Inter Layer Dielectric (ILD) or a step of shallow trench isolation, for polishing a semiconductor device.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tastu (US '073), as applied to claim 10 or 11 above.

Tastu differs in failing to teach an abrasive, which is adjusted with an acidic substance to a pH of 1 to 6.

Art Unit: 1765

It is known that acidic solutions have pH of less than 7 and are used to lower the pH of a substance.

Hence it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to employ an acidic solution to Tastu abrasive composition for the purpose of lowering the pH of the composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ltue

May 2, 2004

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

